

## IN THE CLAIMS

1. (Currently Amended) A dispersion optimized fiber having higher spot area comprising a center core region (1) , a cladding region (2) , a ring core region (3) and an outer glass region (4) , wherein the said center core (1) and the said ring core (3) have refractive indices higher than the said outer glass region (4) and the said cladding region (2) has a lower refractive index than the said outer glass region (4) , wherein  $n_1$ ,  $n_2$ ,  $n_3$  and  $n_4$  represent the refractive index of the said center core region (1) said cladding region (2) said ring core region (3) and said outer glass region (4) respectively and the said refractive indices are constrained by the following equations (1-4) [[:]] to make the fiber have low dispersion and higher effective area during C and L band transmissions:

$$n_1 > n_3 > n_4 > n_2 \quad (1)$$

$$0.008 > (n_1 - n_4) > 0.007 \quad (2)$$

$$0.0018 > (n_3 - n_4) > 0.0014 \quad (3)$$

$$- 0.0005 > (n_2 - n_4) > - 0.0007 \quad (4)$$

2. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein said cladding (2) is provided on an outer periphery of the said center core (1) , and the said ring core (3) is provided on an outer periphery of the said cladding (2) , and the said outer glass region (4) surrounds the said ring core region (3) .

3. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein the fiber is insensitive to micro bend loss and has a dispersion slope less than 0.08

ps/nm<sup>2</sup>.km.

4. (Cancelled)

5. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein the radius of each of the said regions are restricted by the following equations (5-7) :

$$a_1 \text{ is } \approx \text{ about } 2.7 \text{ } \mu\text{m} \quad (5)$$

$$a_2 \text{ is } \approx \text{ about } 6.3 \text{ } \mu\text{m} \quad (6)$$

$$a_3 \text{ is } \approx \text{ about } 8.8 \text{ } \mu\text{m} \quad (7)$$

wherein  $a_1$ ,  $a_2$  and  $a_3$  represents radius of the said center core region (1) , the said cladding region (2) and the said ring core region (3) respectively.

6. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein the fiber it comprises a single cladding region ~~single annular ring~~ (2) of germanium and fluorine doped material between a germanium doped said center core (1) and said ring core (3), and said outer glass region (4) is provided onto an outer periphery of the germanium doped said ring core (3) .

7. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein attenuation at 1550 nm is  $\leq 0.22 \text{ dB/Km}$ , the dispersion at 1530 to 1565 nm is 2.2 to 6.0 ps/nm[.]km and the dispersion at 1565 to 1625 nm is 4.0 to 11 ps/nm[.]km.

8. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein

the dispersion slope is  $0.07 \text{ ps/nm}^2[[.]]\text{km}$ , polarization mode dispersion is  $\leq 0.1 \text{ ps / km}^{0.5}$  and the mode field diameter is  $9.6 \pm 0.4 \text{ }\mu\text{m}$ .

9. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein cable cut off wavelength is  $\leq 1280 \text{ nm}$ , core concentricity is  $\leq 0.6 \text{ }\mu\text{m}$  and the effective area is  $70 \text{ micron}^2$ .

10. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein micro bending is  $\leq 0.05 \text{ dB}$  at  $1550$  and  $1625 \text{ nm}$ , and macro bending is  $\leq 0.5 \text{ dB}$  at  $1550$  and  $1625 \text{ nm}$ .

11. (Currently Amended) The dispersion optimized fiber according to claim 1, wherein the said cladding region (2) is divided into an inner cladding region (2) and an outer cladding region, (4) ~~with the said ring core (3) disposed therebetween.~~

12. (Currently Amended) ~~A~~ The dispersion optimized fiber ~~according to claim 11,~~ wherein the fiber comprises the comprising a center core (1), ~~the~~ an inner cladding (2), a the ring core (3), an the outer cladding (4) and an the outer glass region (5), and the said center core (1) and the said ring core (3) have refractive indices higher than the said outer glass region (5), and the said inner cladding region (2) and the said outer cladding region (4) have lower refractive indices than the said outer glass region (5), wherein  $n_1$ ,  $n_2$ ,  $n_3$ ,  $n_4$  and  $n_5$  represent the refractive indices of the said center core region (1), the said inner cladding region (2), the said ring core region (3), the said outer cladding region (4) and the said outer

glass region (5) respectively and are constrained by the following equations (9-12) to make the fiber have low dispersion and higher effective area during C and L band transmissions:

$$n_1 > n_3 > n_5 > n_2 = n_4 \quad (8)$$

$$0.008 > (n_1 - n_5) > 0.007 \quad (9)$$

$$0.0018 > (n_3 - n_5) > 0.0014 \quad (10)$$

$$- 0.0005 > (n_2 - n_5) > - 0.0007 \quad (11)$$

$$- 0.0005 > (n_4 - n_5) > - 0.0007 \quad (12)$$

13. (Cancelled)

14. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein the said inner cladding (2) is provided on an outer periphery of the said center core (1), and the said ring core (3) is provided between the said inner cladding (2) and said outer cladding (4) ~~and said ring core (3) and the said outer cladding (4) is provided on an outer periphery of the said ring core (3), and the said outer glass region (5) surrounds the said outer cladding (4).~~

15. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein the fiber is insensitive to micro bend loss and has a dispersion slope less than 0.08 ps/nm<sup>2</sup>[[.]]km.

16. (Cancelled)

17. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein the radius of each of the said regions is restricted by the following equations (13-16) :

$$a_1 \text{ is } = \text{ about } 2.7 \text{ } \mu\text{m} \quad (13)$$

$$a_2 \text{ is } = \text{ about } 6.3 \text{ } \mu\text{m} \quad (14)$$

$$a_3 \text{ is } = \text{ about } 8.8 \text{ } \mu\text{m} \quad (15)$$

$$a_4 \text{ is } = \text{ about } 10.8 \text{ } \mu\text{m} \quad (16)$$

wherein  $a_1$ ,  $a_2$ ,  $a_3$  and  $a_4$  represent the radius of the said center core region (1), the said inner cladding region (2), the said ring core region (3) and the said outer cladding region (4) respectively.

18. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein said inner and outer cladding regions (2) and (4) are made ~~the said fiber comprises two annular rings (2) and (4) of germanium and fluorine doped material between a germanium doped center core (1) and ring core (3) , and the outer glass region (5) is provided on an outer periphery of the germanium and fluorine doped outer cladding (4) .~~

19. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein attenuation at 1550 nm is  $\leq 0.25 \text{ dB/km}$ , the dispersion at 1530 to 1565 nm is 1.8 to 6.0 ps/nm[.]km and dispersion at 1565 to 1625 nm is 4.0 to 11 ps/nm[.]km.

20. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~,

wherein ~~typical~~ the dispersion slope is  $0.07 \text{ ps/nm}^2 \text{ km}$ , polarization mode dispersion is  $\leq 0.1 \text{ ps / km}^{0.5}$  and mode field diameter is  $9.6 \pm 0.4 \text{ }\mu\text{m}$ .

21. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein cable cut off wavelength is  $\leq 1480 \text{ nm}$ , core concentricity  $\leq 0.6 \text{ }\mu\text{m}$  and ~~typical~~ effective area is  $70 \text{ micron}^2$ .

22. (Currently Amended) The dispersion optimized fiber according to claim 12 ~~11~~, wherein micro bending is  $\leq 0.05 \text{ dB}$  at 1550 and 1625 nm, macro bending is  $\leq 0.5 \text{ dB}$  at 1550 and 1625 nm.